SOUTHEAST COMMUNITY COLLEGE
DIVISION OF ARTS AND SCIENCES
Mathematics
Revision Date: 07-01-25

I. CATALOG DESCRIPTION

Course Number:	MATH2270
Course Title:	Introduction to Statistics II
Prerequisite(s):	A grade of "C" or higher in MATH2170 or BSAD2170 or appropriate score on math placement test.
Catalog Description:	An intermediate course in probability and statistical methods that are used in a wide variety of disciplines. Topics include tests for means/proportions of two independent groups, analysis of variance for randomized design, contingency tables, multiple linear regression, and nonparametric procedures.
Credit Hours:	3.0
Class Hours:	45
Lab Hours:	0
Total Contact Hours:	45

II. COURSE OBJECTIVES: *Course will:*

A. Develop an understanding of various statistical tests that are used to analyze and interpret data.
B. Differentiate which statistical test to use given the type of data presented.
C. Use confidence intervals and test claims about two population parameters.
D. Use statistical methods for analyzing categorical data that can be separated into different cells.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

A. Student Learning Outcomes**:** *Student will be able to:*
- **1**. Conduct formal hypothesis test of a claim and construct a confidence interval between two samples.
- **2**. Use paired sample data to determine the value of the coefficient and to interpret that value.
- **3**. Interpret results from technology to determine whether a multiple regression equation is suitable for making predictions.
- **4**. Analyze population variances, goodness-of-fit and independence.
- **5**. Understand and use ANOVA to analyze and interpret data.
- **6**. Apply the method of one-way analysis of variance to conduct a hypothesis test of equity of three or more population means.
- **7**. Interpret and understand the value of technology to analyze data and support statistical conclusions.
- **8**. Analyze sample data from populations separated into categories using two characteristics.
- **9**. Apply the method of two-way analysis of variance.
- **10**. Utilize various nonparametric methods to draw conclusions about data

B. General Education Learning Outcomes
- **1.** GELO #5: Analytical, Quantitative, and Scientific Reasoning
  - Outcome: Apply mathematical and scientific methods to solve problems from an array of contexts and everyday situations**.**
  - Outcome: Effectively develop strategies, algorithms, or experiments (or performing experiments) to better describe the systems or to solve the problems.

IV. CONTENT/TOPICAL OUTLINE (*course outline may provide more detailed information*)

A. Intro to R
B. Stat inference

C. One-way ANOVA
D. Experimental designs
E. Multifactor ANOVA
F. Simple Linear Regression
G. Multiple Linear Regression
H. Comparing Proportions
I. Logistic Regression
J. Contingency Tables
K. Goodness-of-Fit

V. INSTRUCTIONAL MATERIALS

A. Required program(s):
1. *Elementary Statistics* 14e. & Sullivan's Statistics: Informed Decisions Using Data 7e.
2. Rstudio

VI. METHOD OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:
1. Class lecture
2. Projects using data sets.
3. Problem sets using Data Quest and Rstudio.
4. Individual student assistance as needed.
5. Group activities and email.

VII. METHODS OF EVALUATION

A. Methods of evaluation typically include a combination of the following:
1. Projects
4. Investigations/Activities/Reports (varies with instructor)
5. Comprehensive final project (required—counts 10-25% of grade)

B. SCC GRADING SCALE

A+	95-100	C+	75-79	F	59 or less
A	90-94	C	70-74		
B+	85-89	D+	65-69		
B	80-84	D	60-64		

VIII. SPECIFIC COURSE REQUIREMENTS

A. None.